

IN THE CLAIMS

Please cancel claims 12-14 without prejudice or disclaimer of subject matter.

Please amend claims 1, 5, 6, and 11, and add new claims 15-17 as follows.

1. (Currently Amended) A sensor comprising:

a waveguide comprising a single substrate and a conductor ~~for allowing an~~
electromagnetic wave to propagate therethrough ~~and allowing an object to be disposed at a~~
plurality of positions thereof provided on the substrate, for transmitting an electromagnetic wave
having at least a part of frequency band of 30 GHz to 30 THz; and

a detecting portion for detecting the electromagnetic wave which has interacted with the
object at the plurality of positions and propagated through the waveguide; and

protrusions comprising a dielectric for disposing the object at the plurality of positions;
the protrusions being periodically disposed at intervals of an order of a wavelength of the
electromagnetic wave such that the object and the electromagnetic wave propagating through the
waveguide interact with each other;

wherein a property of the object is analyzed or identified based on information obtained
from the electromagnetic wave detected by the detecting portion

a plurality of protrusions provided on the conductor,

wherein the plurality of protrusions are provided in a propagation direction of the
electromagnetic wave and provided periodically at an interval which is about a half of a
wavelength of the electromagnetic wave.

2 - 4. (Cancelled)

5. (Currently Amended) ~~A sensing apparatus having a plurality of the sensor set forth in claim 1 arranged in an array~~ The sensor according to claim 1,

wherein a plurality of conductors are provided on the substrate, each of the conductors provided with a plurality of protrusions, and

wherein an electromagnetic wave can propagate through each of the conductors.

6. (Currently Amended) A sensing apparatus comprising:

the sensor set forth in claim 1; ~~and~~

a detecting portion for detecting the electromagnetic wave which has interacted with the object at the plurality of protrusions and propagated through the waveguide; and

a storage portion for storing information associated with ~~the~~ a property of the object,

wherein the information obtained by the detecting portion and the information stored in the storage portion are used to analyze or identify the property of the object.

7. (Original) A sensing apparatus comprising:

the sensor set forth in claim 1; and

means for coupling the electromagnetic wave into the waveguide for allowing the electromagnetic wave to propagate therethrough.

8. (Withdrawn) A method of analyzing or identifying a property of an object using an electromagnetic wave, comprising the steps of:

disposing an object at a plurality of positions of a waveguide for allowing an electromagnetic wave to propagate therethrough; and

detecting the electromagnetic wave which interacted with the object at the plurality of positions and propagated through the waveguide and analyzing or identifying a property of the object based on an information obtained from the detected electromagnetic wave.

9. (Withdrawn) The method according to claim 8, wherein the step of disposing the object at the plurality of positions comprises periodically disposing the object at the plurality of positions.

10. (Previously Presented) The sensor according to claim 1, wherein the waveguide is a coplanar waveguide which comprises a dielectric having disposed on a surface thereof the single conductor and a ground conductor with a minute gap between the single conductor and the ground conductor, and

wherein the protrusions are disposed on the surface of the dielectric and have a structure in which the object is disposed in the minute gap at a pitch corresponding to a half of the wavelength of the electromagnetic wave.

11. (Currently Amended) A sensing apparatus comprising the sensor set forth in claim 1,
further comprising:

a waveguide for allowing an electromagnetic wave of 30 GHz to 30 THz to propagate
therethrough and allowing a sensing object to be disposed thereon;

a detecting portion for detecting the electromagnetic wave which has propagated through
the waveguide,

an ink jet system for ejecting and disposing the object on the waveguide; and
protrusions comprising a dielectric and disposed at a plurality of positions on the
waveguide located at intervals such that the object and the electromagnetic wave propagating
through the waveguide interact with each other;

wherein the object is ejectable from the ink jet system toward the protrusions
wherein a plurality of the objects disposed at each of the plurality of protrusions and an
electromagnetic wave propagating through the waveguide interact with each other, and
wherein the electromagnetic wave subjected to the interaction is detected by the detecting
portion.

12 - 14. (Cancelled)

15. (New) The sensor according to claim 1,
wherein the protrusion comprises a dielectric,
wherein the waveguide comprises a microstrip line comprising a single conductor, and
wherein the propagation direction of the electromagnetic wave is defined by the
conductor.

16. (New) The sensing apparatus according to claim 11, comprising:
an ink jet system for ejecting the plurality of objects toward the plurality of protrusions;
and
a storage portion for storing information associated with properties of the objects,
wherein information obtained by the detecting portion and the information stored in the
storage portion are used to analyze or identify the properties of the objects.

17. (New) A sensing apparatus comprising:
a coplanar waveguide comprising a substrate, a conductor provided on the substrate, and
a ground conductor provided on the substrate so as to have a minute gap between the conductor
and the ground conductor, the waveguide for transmitting an electromagnetic wave having at
least a part of a frequency band of 30 GHz to 30 THz;
a detecting portion for detecting an electromagnetic wave which has propagated through
the waveguide; and

an ink jet system for ejecting a plurality of objects toward the minute gap,
wherein the conductor and the ground conductor are disposed on a same surface of the substrate,

wherein the minute gap is provided in a propagation direction of the electromagnetic wave, and

wherein the plurality of objects can be disposed at an interval corresponding to a half of an wavelength of the electromagnetic wave in the minute gap in the substrate.